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RAW SEQUENCE LISTING                    DATE: 04/17/2003
PATENT APPLICATION:  **US/09/284,327A**     TIME: 10:41:38

Input Set : **A:\GC516-2-US-SEQLIST.txt**
Output Set: **N:\CRF4\04172003\I284327A.raw**

```
 4 <110> APPLICANT: Bower, Benjamin S.
 5         Fowler, Timothy
 6         Phillips, Jay I.
 8 <120> TITLE OF INVENTION: Novel EGIII-Like Enzymes, DNA Encoding
 9         Such Enzymes and Methods for Producing Such Enzymes
12 <130> FILE REFERENCE: GC516-2-US
14 <140> CURRENT APPLICATION NUMBER: US 09/284,327A
15 <141> CURRENT FILING DATE: 1999-04-10
17 <150> PRIOR APPLICATION NUMBER: PCT/US98/26552
18 <151> PRIOR FILING DATE: 1998-12-14
20 <160> NUMBER OF SEQ ID NOS: 68
22 <170> SOFTWARE: FastSEQ for Windows Version 4.0
24 <210> SEQ ID NO: 1
25 <211> LENGTH: 5
26 <212> TYPE: PRT
27 <213> ORGANISM: Artificial Sequence
29 <220> FEATURE:
30 <223> OTHER INFORMATION: synthetic
```
W--> `32 <221> NAME/KEY: VARIANT`
```
33 <222> LOCATION: 3
34 <223> OTHER INFORMATION: Xaa = Leu, Phe, Lys, or Ile
```
W--> `36 <400> 1`
W--> `37 Asn Asn Xaa Trp Gly`
```
38  1               5
40 <210> SEQ ID NO: 2
41 <211> LENGTH: 5
42 <212> TYPE: PRT
43 <213> ORGANISM: Artificial Sequence
45 <220> FEATURE:
46 <223> OTHER INFORMATION: synthetic
```
W--> `48 <221> NAME/KEY: VARIANT`
```
49 <222> LOCATION: 2
50 <223> OTHER INFORMATION: Xaa = Leu, Phe, or Ile
```
W--> `52 <400> 2`
W--> `53 Glu Xaa Met Ile Trp`
```
54  1               5
56 <210> SEQ ID NO: 3
57 <211> LENGTH: 6
58 <212> TYPE: PRT
59 <213> ORGANISM: Artificial Sequence
61 <220> FEATURE:
62 <223> OTHER INFORMATION: synthetic
64 <400> SEQUENCE: 3
```

Input Set : A:\GC516-2-US-SEQLIST.txt
Output Set: N:\CRF4\04172003\I284327A.raw

```
65  Gly Thr Glu Pro Phe Thr
66  1                     5
68  <210> SEQ ID NO: 4
69  <211> LENGTH: 5
70  <212> TYPE: PRT
71  <213> ORGANISM: Artificial Sequence
73  <220> FEATURE:
74  <223> OTHER INFORMATION: synthetic
76  <400> SEQUENCE: 4
77  Ser Val Lys Ser Tyr
78  1                 5
80  <210> SEQ ID NO: 5
81  <211> LENGTH: 6
82  <212> TYPE: PRT
83  <213> ORGANISM: Artificial Sequence
85  <220> FEATURE:
86  <223> OTHER INFORMATION: synthetic
88  <400> SEQUENCE: 5
89  Lys Asn Phe Phe Asn Tyr
90  1                     5
92  <210> SEQ ID NO: 6
93  <211> LENGTH: 702
94  <212> TYPE: DNA
95  <213> ORGANISM: Trichoderma reesei
97  <400> SEQUENCE: 6
98  atgaagttcc ttcaagtcct ccctgccctc ataccggccg ccctggccca aaccagctgt    60
99  gaccagtggg caaccttcac tggcaacggc tacacagtca gcaacaacct ttggggagca   120
100 tcagccggct ctggatttgg ctgcgtgacg gcggtatcgc tcagcggcgg ggcctcctgg   180
101 cacgcagact ggcagtggtc cggcggccag aacaacgtca agtcgtacca gaactctcag   240
102 attgccattc cccagaagag gaccgtcaac agcatcagca gcatgcccac cactgccagc   300
103 tggagctaca gcgggagcaa catccgcgct aatgttgcgt atgacttgtt caccgcagcc   360
104 aacccgaatc atgtcacgta ctcgggagac tacgaactca tgatctggct tggcaaatac   420
105 ggcgatattg ggccgattgg gtcctcacag ggaacagtca acgtcggtgg ccagagctgg   480
106 acgctctact atggctacaa cggagccatg caagtctatt cctttgtggc ccagaccaac   540
107 actaccaact acagcggaga tgtcaagaac ttcttcaatt atctccgaga caataaagga   600
108 tacaacgctg caggccaata tgttcttagc taccaatttg gtaccgagcc cttcacgggc   660
109 agtggaactc tgaacgtcgc atcctggacc gcatctatca ac                      702
111 <210> SEQ ID NO: 7
112 <211> LENGTH: 232
113 <212> TYPE: PRT
114 <213> ORGANISM: Trichoderma reesei
116 <400> SEQUENCE: 7
117 Met Lys Phe Leu Gln Val Leu Pro Ala Leu Ile Pro Ala Ala Leu Ala
118 1               5                  10                  15
119 Gln Thr Ser Cys Asp Gln Trp Ala Thr Phe Thr Gly Asn Gly Tyr Thr
120             20                  25                  30
121 Val Ser Asn Asn Leu Trp Gly Ala Ser Ala Gly Ser Gly Phe Gly Cys
122         35                  40                  45
123 Val Thr Ala Val Ser Leu Ser Gly Gly Ala His Ala Asp Trp Gln Trp
```

```
124      50                    55                    60
125 Ser Gly Gly Gln Asn Asn Val Lys Ser Tyr Gln Asn Ser Gln Ile Ala
126 65               70                75                80
127 Ile Pro Gln Lys Arg Thr Val Asn Ser Ile Ser Ser Met Pro Thr Thr
128               85                90                95
129 Ala Ser Trp Ser Tyr Ser Gly Ser Asn Ile Arg Ala Asn Val Ala Tyr
130           100               105               110
131 Asp Leu Phe Thr Ala Ala Asn Pro Asn His Val Thr Tyr Ser Gly Asp
132           115               120               125
133 Tyr Glu Leu Met Ile Trp Leu Gly Lys Tyr Gly Asp Ile Gly Pro Ile
134     130               135               140
135 Gly Ser Ser Gln Gly Thr Val Asn Val Gly Gly Gln Ser Trp Thr Leu
136 145               150               155               160
137 Tyr Tyr Gly Tyr Asn Gly Ala Met Gln Val Tyr Ser Phe Val Ala Gln
138               165               170               175
139 Thr Asn Thr Thr Asn Tyr Ser Gly Asp Val Lys Asn Phe Phe Asn Tyr
140               180               185               190
141 Leu Arg Asp Asn Lys Gly Tyr Asn Ala Ala Gly Gln Tyr Val Leu Ser
142           195               200               205
143 Tyr Gln Phe Gly Thr Glu Pro Phe Thr Gly Ser Gly Thr Leu Asn Val
144     210               215               220
145 Ala Ser Trp Thr Ala Ser Ile Asn
146 225               230
148 <210> SEQ ID NO: 8
149 <211> LENGTH: 234
150 <212> TYPE: PRT
151 <213> ORGANISM: Trichoderma reesei
153 <400> SEQUENCE: 8
154 Met Lys Phe Leu Gln Val Leu Pro Ala Leu Ile Pro Ala Ala Leu Ala
155   1             5                10                15
156 Gln Thr Ser Cys Asp Gln Trp Ala Thr Phe Thr Gly Asn Gly Tyr Thr
157           20                25                30
158 Val Ser Asn Asn Leu Trp Gly Ala Ser Ala Gly Ser Gly Phe Gly Cys
159           35                40                45
160 Val Thr Ala Val Ser Leu Ser Gly Gly Ala Ser Trp His Ala Asp Trp
161     50                55                60
162 Gln Trp Ser Gly Gly Gln Asn Asn Val Lys Ser Tyr Gln Asn Ser Gln
163 65                70                75                80
164 Ile Ala Ile Pro Gln Lys Arg Thr Val Asn Ser Ile Ser Ser Met Pro
165               85                90                95
166 Thr Thr Ala Ser Trp Ser Tyr Ser Gly Ser Asn Ile Arg Ala Asn Val
167           100               105               110
168 Ala Tyr Asp Leu Phe Thr Ala Ala Asn Pro Asn His Val Thr Tyr Ser
169           115               120               125
170 Gly Asp Tyr Glu Leu Met Ile Trp Leu Gly Lys Tyr Gly Asp Ile Gly
171     130               135               140
172 Pro Ile Gly Ser Ser Gln Gly Thr Val Asn Val Gly Gly Gln Ser Trp
173 145               150               155               160
174 Thr Leu Tyr Tyr Gly Tyr Asn Gly Ala Met Gln Val Tyr Ser Phe Val
```

```
175                  165                170                  175
176 Ala Gln Thr Asn Thr Thr Asn Tyr Ser Gly Asp Val Lys Asn Phe Phe
177              180                185                190
178 Asn Tyr Leu Arg Asp Asn Lys Gly Tyr Asn Ala Ala Gly Gln Tyr Val
179          195                200                205
180 Leu Ser Tyr Gln Phe Gly Thr Glu Pro Phe Thr Gly Ser Gly Thr Leu
181      210                215                220
182 Asn Val Ala Ser Trp Thr Ala Ser Ile Asn
183 225                230
185 <210> SEQ ID NO: 9
186 <211> LENGTH: 234
187 <212> TYPE: PRT
188 <213> ORGANISM: Hypocrea schweinitzii
190 <400> SEQUENCE: 9
191 Met Lys Phe Leu Gln Val Leu Pro Ala Ile Leu Pro Ala Ala Leu Ala
192   1                5                10                15
193 Gln Thr Ser Cys Asp Gln Tyr Ala Thr Phe Ser Gly Asn Gly Tyr Ile
194              20                25                30
195 Val Ser Asn Asn Leu Trp Gly Ala Ser Ala Gly Ser Gly Phe Gly Cys
196              35                40                45
197 Val Thr Ser Val Ser Leu Asn Gly Ala Ala Ser Trp His Ala Asp Trp
198      50                55                60
199 Gln Trp Ser Gly Gly Gln Asn Asn Val Lys Ser Tyr Gln Asn Val Gln
200 65                70                75                80
201 Ile Asn Ile Pro Gln Lys Arg Thr Val Asn Ser Ile Gly Ser Met Pro
202              85                90                95
203 Thr Thr Ala Ser Trp Ser Tyr Ser Gly Ser Asp Ile Arg Ala Asn Val
204              100                105                110
205 Ala Tyr Asp Leu Phe Thr Ala Ala Asn Pro Asn His Val Thr Tyr Ser
206          115                120                125
207 Gly Asp Tyr Glu Leu Met Ile Trp Leu Gly Lys Tyr Gly Asp Ile Gly
208      130                135                140
209 Pro Ile Gly Ser Ser Gln Gly Thr Val Asn Val Gly Gly Gln Thr Trp
210 145                150                155                160
211 Thr Leu Tyr Tyr Gly Tyr Asn Gly Ala Met Gln Val Tyr Ser Phe Val
212              165                170                175
213 Ala Gln Ser Asn Thr Thr Ser Tyr Ser Gly Asp Val Lys Asn Phe Phe
214              180                185                190
215 Asn Tyr Leu Arg Asp Asn Lys Gly Tyr Asn Ala Gly Gly Gln Tyr Val
216          195                200                205
217 Leu Ser Tyr Gln Phe Gly Thr Glu Pro Phe Thr Gly Ser Gly Thr Leu
218      210                215                220
219 Asn Val Ala Ser Trp Thr Ala Ser Ile Asn
220 225                230
222 <210> SEQ ID NO: 10
223 <211> LENGTH: 259
224 <212> TYPE: PRT
225 <213> ORGANISM: Aspergillus aculeatus
227 <400> SEQUENCE: 10
```

RAW SEQUENCE LISTING                    DATE: 04/17/2003
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Input Set : **A:\GC516-2-US-SEQLIST.txt**
Output Set: **N:\CRF4\04172003\I284327A.raw**

```
228 Met Lys Ala Phe His Leu Leu Ala Ala Leu Ala Gly Ala Ala Val Ala
229 1               5               10              15
230 Gln Gln Ala Gln Leu Cys Asp Gln Tyr Ala Thr Tyr Thr Gly Gly Val
231         20              25              30
232 Tyr Thr Ile Asn Asn Asn Leu Trp Gly Lys Asp Ala Gly Ser Gly Ser
233         35              40              45
234 Gln Cys Thr Thr Val Asn Ser Ala Ser Ser Ala Gly Thr Ser Trp Ser
235     50              55              60
236 Thr Lys Trp Asn Trp Ser Gly Gly Glu Asn Ser Val Lys Ser Tyr Ala
237 65              70              75              80
238 Asn Ser Gly Leu Thr Phe Asn Lys Lys Leu Val Ser Gln Ile Ser Gln
239             85              90              95
240 Ile Pro Thr Thr Ala Arg Trp Ser Tyr Asp Asn Thr Gly Ile Arg Ala
241         100             105             110
242 Asp Val Ala Tyr Asp Leu Phe Thr Ala Ala Asp Ile Asn His Val Thr
243         115             120             125
244 Trp Ser Gly Asp Tyr Glu Leu Met Ile Trp Leu Ala Arg Tyr Gly Gly
245     130             135             140
246 Val Gln Pro Ile Gly Ser Gln Ile Ala Thr Ala Thr Val Asp Gly Gln
247 145             150             155             160
248 Thr Trp Glu Leu Trp Tyr Gly Ala Asn Gly Ser Gln Lys Thr Tyr Ser
249             165             170             175
250 Phe Val Ala Pro Thr Pro Ile Thr Ser Phe Gln Gly Asp Val Asn Asp
251         180             185             190
252 Phe Phe Lys Tyr Leu Thr Gln Asn His Gly Phe Pro Ala Ser Ser Gln
253         195             200             205
254 Tyr Leu Ile Thr Leu Gln Phe Gly Thr Glu Pro Phe Thr Gly Gly Pro
255     210             215             220
256 Ala Thr Leu Ser Val Ser Asn Trp Ser Ala Ser Val Gln Gln Ala Gly
257 225             230             235             240
258 Phe Glu Pro Trp Gln Asn Gly Ala Gly Leu Ala Val Asn Ser Phe Ser
259             245             250             255
260 Ser Thr Val
263 <210> SEQ ID NO: 11
264 <211> LENGTH: 239
265 <212> TYPE: PRT
266 <213> ORGANISM: Aspergillus kawachii (1)
268 <400> SEQUENCE: 11
269 Met Lys Leu Ser Met Thr Leu Ser Leu Phe Ala Ala Thr Ala Met Gly
270 1               5               10              15
271 Gln Thr Met Cys Ser Gln Tyr Asp Ser Ala Ser Ser Pro Pro Tyr Ser
272         20              25              30
273 Val Asn Gln Asn Leu Trp Gly Glu Tyr Gln Gly Thr Gly Ser Gln Cys
274         35              40              45
275 Val Tyr Val Asp Lys Leu Ser Ser Ser Gly Ala Ser Trp His Thr Lys
276     50              55              60
277 Trp Thr Trp Ser Gly Gly Glu Gly Thr Val Lys Ser Tyr Ser Asn Ser
278 65              70              75              80
279 Gly Leu Thr Phe Asp Lys Lys Leu Val Ser Asp Val Ser Ser Ile Pro
```

**RAW SEQUENCE LISTING ERROR SUMMARY**    DATE: 04/17/2003
PATENT APPLICATION:  **US/09/284,327A**     TIME: 10:41:39

Input Set : **A:\GC516-2-US-SEQLIST.txt**
Output Set: **N:\CRF4\04172003\I284327A.raw**

<u>Please Note:</u>
**Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.**

Seq#:1; Xaa Pos. 3
Seq#:2; Xaa Pos. 2
Seq#:30; N Pos. 9
Seq#:31; N Pos. 9
Seq#:32; N Pos. 12
Seq#:33; N Pos. 6
Seq#:34; N Pos. 10
Seq#:35; N Pos. 9
Seq#:36; N Pos. 10
Seq#:37; N Pos. 6
Seq#:38; N Pos. 6
Seq#:39; N Pos. 6
Seq#:40; N Pos. 6
Seq#:41; N Pos. 12,15
Seq#:42; Xaa Pos. 1,2,3,4,5
Seq#:60; Xaa Pos. 6
Seq#:64; Xaa Pos. 1
Seq#:65; Xaa Pos. 4
Seq#:68; Xaa Pos. 4

**VERIFICATION SUMMARY**　　　　　　　DATE: 04/17/2003
PATENT APPLICATION:　**US/09/284,327A**　　TIME: 10:41:39

Input Set : **A:\GC516-2-US-SEQLIST.txt**
Output Set: **N:\CRF4\04172003\I284327A.raw**

```
L:32 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:36 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:1
L:37 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0
L:48 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:52 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:53 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0
L:1046 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1050 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:30
L:1051 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30 after pos.:0
L:1061 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1065 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:31
L:1066 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:31 after pos.:0
L:1076 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1080 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:32
L:1081 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:32 after pos.:0
L:1091 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1095 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:33
L:1096 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:33 after pos.:0
L:1106 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1110 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:34
L:1111 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:34 after pos.:0
L:1121 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1125 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:35
L:1126 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:0
L:1136 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1140 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:1141 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:0
L:1151 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1155 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:37
L:1156 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:0
L:1166 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1170 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:38
L:1171 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:0
L:1181 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1185 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:39
L:1186 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39 after pos.:0
L:1196 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1200 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:40
L:1201 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:40 after pos.:0
L:1211 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1215 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:41
L:1216 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:41 after pos.:0
L:1226 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1230 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:42
L:1234 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:42
L:1238 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:42
L:1242 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:42
L:1246 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:42
```

**VERIFICATION SUMMARY**
PATENT APPLICATION:  **US/09/284,327A**

DATE: 04/17/2003
TIME: 10:41:39

Input Set : **A:\GC516-2-US-SEQLIST.txt**
Output Set: **N:\CRF4\04172003\I284327A.raw**

```
L:1247 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42 after pos.:0
L:1623 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1627 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:60
L:1628 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:60 after pos.:0
L:1707 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1711 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:64
L:1712 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:64 after pos.:0
L:1723 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1727 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:65
L:1728 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:65 after pos.:0
L:1763 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:1767 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:68
L:1768 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:68 after pos.:0
```